

REPORT ON THE CHROMOSOME NUMBERS OF SOME SPECIES OF CAMELLIA IN CHINA

Gu Zhijian, Xia Lifang, Xie Lishan

(*Kunming Institute of Botany, Academia Sinica, Kunming*)

Katsuhiko Kondo

(*Hiroshima University, Faculty of Integrated Arts and sciences, Japan*)

The genus of *Camellia* consists of over 200 species, its distributing centre is in the south and southwest part of China. Morinaga[1, 2] firstly did the cytological studies of *Camellia* in 1929, who examined the chromosome number of *C. sinensis* and *C. japonica* and confirmed the basic number $n = x = 15$; then, *C. sinensis* var. *macrophylla* $2n = 45$, $2n = 60$, to be polyploid were reported by Karasawa[3]. Simura[4] in 1935; from 50th to 60th decade the research on chromosome number of *Camellia* had developed and 14 species were reported. Since 1970, a series works on cytological studies of *Camellia* either the wild species or the cultivated varieties had been done by K. Kondo[5, 6]. Recent years, the cytological studies on some species of *Camellia* have been reported by Chinese scholar[7]. Up to now, chromosome number and karyotypes of over 40 species have been studied on the *Camellia*. This paper reports the chromosome numbers of 36 species and varieties, according to the taxonomic system of Zhang Hongda, which involved 4 subgenus and 11 sections, of which, 2 species that include different populations were respectively observed. The results (Table 1) proved that the basic number of *Camellia* is $x = 15$, in natural condition, the ploidy varied from diploid ($2n = 30$) to octoploid ($2n = 8x = 120$), but most are diploid. Of the 36 species and varieties, 22 species or varieties are diploid, 3 species are tetraploid, 10 species or varieties are hexaploid, and one species is octoploid in this paper, which a series variation of ploidy belongs to interspecies, besides, same species also have variation of ploidy in different populations, for example *C. forrestii* that with different populations occurred variation in chromosome ploidy, diploid, tetraploid and hexaploid are appeared in different populations, which would seems to indicate

that among different populations within a species, occurred a series of evolution in ploidy, although only from the herbarium there are no obvious variation in taxonomic characters are recorgnized, and therefore, identified as the same taxon and estimated as autopolyploid or named interspecies polyploid.

All plants used in this study have been carried from their native habitats and cultivated in Camellia Garden of Kunming Institute of Botany, Academia Sinica. The root-tips were cut from the plants and pretreated in 0.1% colchcine at 20°C for 4 hours. Then, they were fixed, hydrolyzed, stained and squashed by standard methods for observation of metaphase chromosomes.

The specimen of voucher have been kept in Kunming Institute of Botany, Academia Sinica.

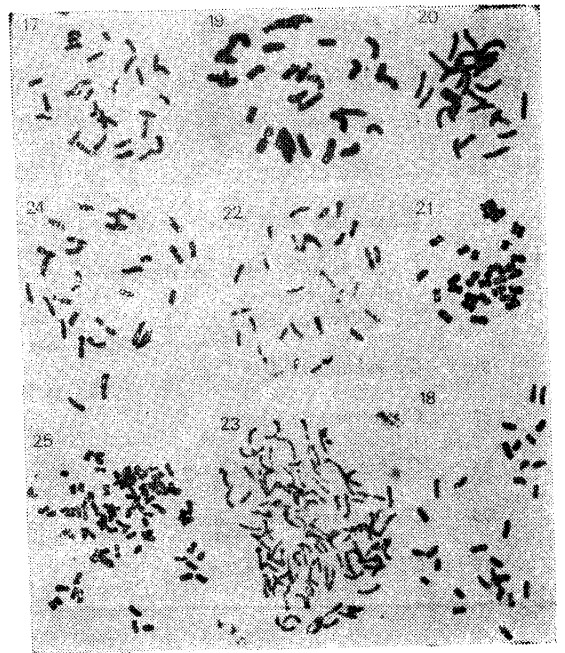
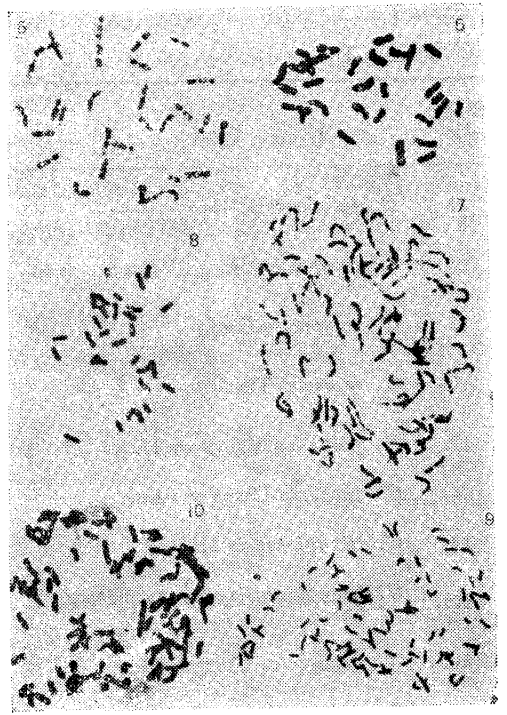
Key words *Camellia*; Chromosome number; Ploidy

表 1 中国部分山茶属植物的染色体数目
Tabel 1 The Chromosome Numbers of Some Species of *Camellia* in China

图版号 No.	种 名 Species	产 地 Locality	凭证标本 Vouchers No.	染 色 体 数 Chromosome numbers	文献记载 Previous records
1 a	<i>C. forrestii</i> (Diels) Cohen Stuard	Yuanjiang Yunnan	85—28	30	30
1 b	<i>C. forrestii</i> (Diels) Cohen Stuard	Kaiyuan Yunnan	84— 1	60	
1 c	<i>C. forrestii</i> (Ciels) Cohen Stuard	Wenshan Yunnan	84—16	90	
2 a	<i>C. albovillosa</i> Hu	Kaiyuan Yunnan	85—36	30	
2 b	<i>C. albovillosa</i> Hu	Yuanjiang Yunnan	84— 2	30	
3	<i>C. pitardii</i> var. <i>pitardii</i> Cohen stuard	Yiliang Yunnan	84—11	30	30、90
4	<i>C. pitardii</i> var. <i>yunnanica</i> Sealy	Lufeng Yunnan	84— 3	90	90
5	<i>C. taliensis</i> (W. W. Sm) Mechior	Yuanjiang Yunnan	84— 7	30	
6	<i>C. yunnanensis</i> (Pitard ex Diels) Cohen Stuard	Mouding Yunnan	84— 8	30	30
7	<i>C. crassipes</i> Sely	Chuxiong Yunnan	84— 9	90	
8	<i>C. grijsii</i> Hance	Kunming Yunnan	84—001	30	
9	<i>C. reticulata</i> Lindl	Tengchong Yunnan	84—10	90	90
10	<i>C. mairei</i> var. <i>velutina</i> Sealy	Mojiang Yunnan	84— 6	90	90
11 a	<i>C. wenshanensis</i> Hu	Wenshan Ynnan	84—14	30	
11 b	<i>C. wenshanensis</i> Hu	Maguan Yunnan	85—23	30	
12	<i>C. funinensis</i> Feng sp. nov. in herb	Funing Yunnan	84—15	30	

续 表 1

图版号 No.	种 名 Species	产 地 Locality	凭证标本 Vouchers No.	染 色 体 数 Chromosome numbers	文献记载 Previous records
13	<i>C. jingdonensis</i> Hu	Jingdong Yunnan	84—20	90	
14	<i>C. octopetala</i> Hu	Zhejiang Institute of Forestry	85—1	30	30
15	<i>C. compressa</i> Chang	Sangzhi Hunan	85—3	120	
16	<i>C. sasanqua</i> Thunb	Guangxi Institute of Forestry	85—4	90	90
17	<i>C. polyodonta</i> How ex Hu	Guilin Guangxi	85—14	30	30
18	<i>C. purpurea</i> Chang et Chen	Pingbian Yunnann	85—18	30	
19	<i>C. tsingpiensis</i> Hu	Pingbian Yunnann	85—19	30	
20	<i>C. tsingpiensis</i> var. <i>pubisepara</i> Chang	Funing Yunnan	85—26	30	
21	<i>C. makuannica</i> Chang et Tang	Maguan Yunnan	85—20	30	
22	<i>C. chekiangoleiosa</i> Hu	Guangnan Yunnan	85—31	30	30
23	<i>C. gauchowensis</i> Chang	Guangnan Yunnan	85—32	30	
24	<i>C. semiserrata</i> Chi	Guangxi Institute of Forestry	85—34	30	30
25	<i>C. cryptoneura</i> Chang	Xishui Guizhou	85—40	90	
26	<i>C. luteoflora</i> Y. K. Li	Chishui Guizhou	85—41	30	
27	<i>C. euphlexia</i> Merr. ex Sealy	Fangcheng Guangxi	85—56	30	30
28	<i>C. oblata</i> Chang	Fangcheng Guangxi	85—57	30	
29	<i>C. caudata</i> Wall	Fangcheng Guangxi	85—58	60	
30	<i>C. chrysantha</i> (Hu) ex Tuyama	Fangcheng Guangxi	85—59	30	30
31	<i>C. xylocarpa</i> (Hu) ex Chang	Changning Yunnan	85—66	60	
32	<i>C. rubituberculata</i> Chang	Qinglong Guizhou	85—63	30	
33	<i>C. tetracocca</i> Chang	Qinglong Guizhou	85—65	30	
34	<i>C. kweichowensis</i> Chang	Qingzhen Guizhou	85—62	90	
35	<i>C. impressinervis</i> Chang	Longzhou Guangxi	78—1	30	30
36	<i>C. yankingensis</i> Chang	Yuanjiang Yunnan	85—30	90	



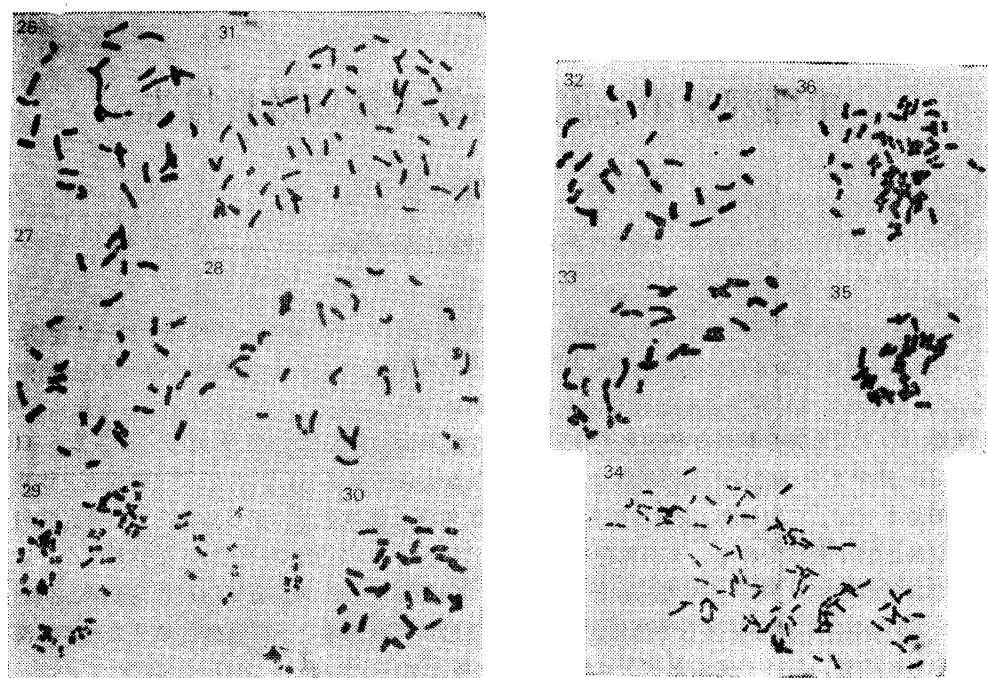


图 1—36 中国山茶属部分种的染色体

Fig. 1—36 The chromosomes of some species of *Camellia* in China.

Literature cited

- 1 Morinaga T. *Bot. Mag. Tokyo* 1929; 43:589
- 2 Morinaga T. *Bot. Mag. Tokyo* 1931; 45:140
- 3 Karasawa K. *Japan J. Genet* 1935; 2:320
- 4 Simura T. *Proc Crop Sci Soc Japan* 1935; 7:121—133
- 5 Kondo K. *Biotropica* 1977; 9:86—94
- 6 Kondo K. *I Phytion* 1980; 39:49—56
- 7 Huang S F. *Sci Subsily* 1981; 4:18—24

中国部分山茶属植物的染色体数目报告

顾志建 夏丽芳 谢立山

(中国科学院昆明植物研究所, 昆明)

近藤胜彦

(日本广岛大学综合科学部)

摘要 本文报道36个种或变种的染色体数目, 按张宏达的分类系统涉及到了4个亚属、11个组, 其中2个种进行了不同居群的观察。结果表明(详见表1), 山茶属植物的染色体基数都是 $x = 15$ 。在自然界, 染色体倍性变异从2倍体到8倍体均有, 但多数种为2倍体。我们观察的这36个种或变种中, 2倍体种有22个, 4倍体种3个, 6倍体种10个, 8倍体种1个。这一系列的多倍性变异, 主要表现在种间。此外, 同种不同居群间也有不同倍性的变异。例如 *C. forrestii* 在不同居群间有2倍体、4倍体和6倍体。而且各个不同倍性的植株表型特征没有明显的变异, 估计是同源多倍体或称种内多倍体。

关键词 山茶属; 染色体数目; 倍性